Viscosity determinations of the plasma are now being carried out, and the results so far seem to indicate an increased viscosity of the plasma of the operated animals; however, additional experiments are required before a definite statement can be made in this regard.

229 (2752)

Epinephrin anhydremia and its relation to the emergency function of the adrenals.

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It has been well known, since Lamson[1] first worked on this subject, that the blood concentrates in response to small increases in its epinephrin content. This phenomenon has been studied very little in unanesthetized animals, no attention having been paid to the threshold dose of epinephrin which produces anhydremia.

We have performed 25 experiments in which epinephrin has been injected in varying amounts in a number of unanesthetized dogs. In most of these the total blood solids were determined before each injection, and at five minute intervals thereafter. To insure observation of the maximum effect, ten of the experiments were controlled by following the specific gravity (Falling Drop Method[2]) at approximately one minute intervals. It was found that the threshold dose for epinephrin anhydremia is approximately .0001 mg. per kilo animal, while to produce the maximum effect about .01 mg. per kilo is required. With this latter dose the greatest effect was a change of specific gravity in one case from 1.0504 to 1.0562, which occurred within 2 minutes after the injection. The normal level of blood concentration is always regained within about 10 minutes, and a definite although slight dilution often follows. It is thus seen that in unanesthetized

[1] Lamson, P. D., *J. Pharmacol. and Exper. Therap.*, 1915, vii, 169.

[2] Barbour, H. G., and Hamilton, W. F., *Am. J. Physiol.*, 1924, lxix, 654..

animals, this anhydremia is of rapid onset and immediately reversible. It is, therefore, unrelated to the delayed hematopoietic polycythemia described by Edmunds and Stone.[3] The low dosage which suffices to evoke epinephrin anhydremia indicates that the latter is a factor which must be accounted for in all experiments bearing upon the emergency function of the adrenals.

Further evidence that blood concentration can not be overlooked in the study of emotional responses is seen in excitement anhydremia. The time, course and extent of this phenomenon closely resemble the epinephrin effect. To what extent this is referable to the adrenals, as suggested by Lamson,[1] we have attempted to determine by the expedient of cutting both splanchnic nerves in a series of five dogs. The effect upon the blood concentration of brief periods of teasing such animals before and a week or more after this operation is shown in the following table:

Excitement Changes in Total Solids or Specific Gravity of Blood Before and after Splanchnotomy.

Dog No.	Unoperated		Splanchnotomized	
	Calm	Excited	Calm	Excited
1			18.2%	18.1%
2	18.8%	22.3%	16.2%	17.3%
7	1.0503	1.0520	1.0448	1.0487
16	1.0425	1.0487	1.0398	1.0438
17	1.0497	1.0518	1.0439	1.0472

Excitement anhydremia, so far as one can judge from the above results, is of the same order of magnitude after double splanchnotomy as before. It does, therefore, not require the sympathetic control of liver, spleen or adrenals. Any of these may of course, in normal animals, participate in the emergency concentration of the blood.

[3] Edmunds, C. W., and Stone, R. P., *Arch. internat. de Pharm. et de Therap.*, 1924, xxviii, 391.